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SIM System Testbed III

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ABSTRACT

The System Testbed III (STB-3) is the flagship testbed in JPL's Interferometry Technology Program for the Space Interferometry Mission, in which it holds a place as the piece of ground hardware that looks and acts most like the real SIM space system.

STB-3 is a 3-year, $11.5M program targeted at demonstrating that the SIM architecture, using two interferometers trained at bright guide stars to stabilize a third "science" interferometer in pathlength and angle, will work. STB-3 will also demonstrate much of the complexity of full SIM operations in the laboratory by the end of 2001.

STB-3 is currently operating on optical tables in its first phase and is in the process of being moved to a full-size flight-like structure where feedforward stabilization of the science interferometer will be re-demonstrated. Finally, in its third phase, STB-3 will add autoalignment and other autonomous operations.

This paper will present the current status of and data from STB-3, what's been learned about feedforward stabilization, and designs and plans for phases 2 and 3.

Keywords: SIM space interferometry pathlength feedforward angle technology control